

Facsimile No. 703-308-7764
Serial No. 08/703,100
Attorney Docket No. 5060.03

1. (Once amended) A microwavable container comprising:
 - an outer sleeve;
 - an inner tray within said sleeve, said inner tray [and] having a bottom wall and at least one upstanding side wall about the periphery of said bottom wall;
 - a first active microwave energy heating element within said sleeve, said first active microwave energy heating element [and] disposed opposite a food product carried by said tray; and
 - a second active microwave energy heating element on said tray, said second active microwave energy heating element having patterns of microwave energy interactive material on said [the] bottom and side walls [of said tray configured to permit a controlled degree of penetration of], wherein said first and second active microwave energy heating elements cooperatively control transmission of incident microwave energy [through said bottom wall to channel microwave energy] towards a central region of said food product, while promoting browning of an outer surface of said [tray and to promote browning of a] food product [carried by said tray about the periphery thereof].
21. (Once amended) A tray for a microwavable container comprising:
 - a bottom wall;
 - at least one upstanding side wall about a [the] periphery of said bottom wall;
 - and
 - an active microwave energy heating element within said tray, said active microwave energy heating element having patterns of microwave energy interactive material on the bottom wall and the at least one upstanding side wall [side walls] of said tray, said patterns configured to control transmission of [permit a controlled degree of penetration of] incident microwave energy [through said bottom wall to channel microwave energy] towards a central region of a food product carried by said tray, [said tray] and further configured to brown an outer surface of said [to promote browning of a] food product [carried by said tray about the periphery thereof], wherein said pattern of microwave energy interactive material on said bottom wall includes at least one meandering loop, the length of which is approximately equal to an integer multiple of the effective wavelength of the incident microwave energy.

Facsimile No. 703-308-7764
Serial No. 08/703,100
Attorney Docket No. 5060.03

22. (canceled)

23. (canceled)

31. (Once amended) An active microwave energy heating insert to be placed under a microwavable container comprising:

a substrate; and

an active microwave energy heating element on an upper surface of said substrate, said active microwave energy heating element including a pattern of microwave energy interactive material [thereon], said pattern configured to control transmission of [permit a controlled degree of penetration of] incident microwave energy [therethrough to channel microwave energy] towards a central region of a microwavable container [thereon] supported on said insert, wherein said pattern of microwave energy interactive material includes at least one meandering loop, the length of which is approximately equal to an integer multiple of the effective wavelength of the incident microwave energy.

32. (canceled)

33. (canceled)

Kindly amend claim 24 to depend upon amended claim 21.

Kindly amend claim 25 to depend upon amended claim 21.

Kindly amend claim 34 to depend upon amended claim 31.

Kindly amend claim 35 to depend upon amended claim 31.

REMARKS

The Applicants respectfully request that the Examiner consider the following remarks in conjunction with the above amendments.

Applicants also submit herewith a new Power of Attorney, revoking all powers of attorney previously given and appointing the practitioners associated with Customer No.

Facsimile No. 703-308-7764
Serial No. 08/703,100
Attorney Docket No. 5060.03

20686 to prosecute this application. The Examiner is requested to make the new Power of Attorney of record and to amend the record accordingly.

The Examiner has objected to the title of the invention in that the title is not considered to be descriptive. In response, Applicants have amended the title of the invention so that it is clearly descriptive of the invention to which the claims are directed. Entry of the amended title is respectfully requested.

The Examiner has rejected claims 21, 22, and 26 under 35 U.S.C. § 102(b) as being clearly anticipated by Habeger, Jr. et al.

The Examiner has further rejected claims 21 and 22 under 35 U.S.C. § 102(b) as being clearly anticipated by Dehn.

In response, Applicants have canceled claims 22 and 23, and amended claim 21 to incorporate the subject matter therein and more particularly claim the subject matter which is regarded as the invention.

In particular, Applicants have amended claim 21 to claim a tray having an active microwave energy heating element having patterns of microwave energy interactive material configured to control transmission of incident microwave energy towards a central region of a food product carried by the tray, and further configured to brown an outer surface of the food product, wherein the pattern of microwave energy interactive material on the bottom wall includes at least one meandering loop, the length of which is approximately equal to an integer multiple of the effective wavelength of the incident microwave energy.

Habeger, Jr. et al. merely discloses the use of a pattern of closed loops forming antennae structures to couple microwave energy from an oven cavity to a food product. Habeger, Jr. et al. teaches, at col. 6, lines 37-41, that folded dipole antenna 12 captures microwave energy from the oven cavity and transfers it to a surface heating zone 15; and, at col. 6, lines 25-28, that surface heating zone must be spaced away from antenna 12. Habeger, Jr. et al. further teaches, at col. 7, lines 11-26, that the length of dipole antenna 12 should ideally be .48, the effective wavelength of the incident radiation, to avoid both capacitive and inductive components.

Applicants submit that Habeger, Jr. et al. does not teach a heating element capable of controlling transmission of incident microwave energy to the center of a food product, and

Facsimile No. 703-308-7764
Serial No. 08/703,100
Attorney Docket No. 5060.03

further configured to brown an outer surface of the food product. Habeger, Jr. et al. is limited to providing surface browning effects.

Nor does Habeger, Jr. et al. teach the use of a meandering loop with a length approximately equal to an integer multiple of the effective wavelength of the incident microwave energy. Applicants' invention, as disclosed at p. 8, lines 21-28, uses a large meandering loop having length which is an integer multiple of the effective incident wavelength to specifically increase localized capacitance. Applicants submit that Habeger, Jr. et al. teaches that it is preferable to avoid a capacitive component, and therefore teaches away from Applicants' invention.

Applicants respectfully submit that amended claim 21, and claim 26 which is dependent thereupon, clearly distinguish over Habeger, Jr. et al., and are now in condition for allowance. Applicants request withdrawal of the rejection of claims 21, 22, and 26 under 35 U.S.C. § 102(b).

Dehn merely discloses, at col. 3, lines 4-14, the use of a plurality of meandering metal strips to couple microwave energy from within the oven cavity to the food contacting surface of a cooking utensil. The result may be more uniform heating of the food product, but Applicants submit that Dehn does not disclose a means of controlling transmission of incident microwave energy to the central region of a food product. Nor does Dehn disclose a heating element in the form of a meandering loop. Accordingly, Applicants submit that amended claim 21 clearly distinguishes over Dehn, and is now in condition for allowance. Applicants request withdrawal of the rejection of claims 21 and 22 under 35 U.S.C. § 102(b).

The Examiner has rejected claim 31 under 35 U.S.C. § 102(b) as being clearly anticipated by Gades et al.

In response, Applicants have amended claim 31 to incorporate the subject matter of canceled claims 32 and 33, and more particularly claim the subject matter which is regarded as the invention.

In particular, Applicants have amended claim 31 to claim an insert to be placed under a microwavable container comprising a substrate, and an active microwave energy heating element on an upper surface of the substrate. The active microwave energy heating element includes a pattern of microwave energy interactive material configured to control transmission

Facsimile No. 703-308-7764
Serial No. 08/703,100
Attorney Docket No. 5060.03

of incident microwave energy towards a central region of a microwavable container supported on the insert, wherein the pattern of microwave energy interactive material includes at least one meandering loop, the length of which is approximately equal to an integer multiple of the effective wavelength of the incident microwave energy.

Gades et al. discloses a ballast, to be placed under a food product, to concentrate microwave energy to the food product. As taught at col. 2, lines 51-61, and col. 3, lines 17-21, the ballast is preferably formed of two polypropylene sheets 12 and 14, with a pair of concentric metal rings sandwiched therebetween. The sheets have a combined thickness of 1 1/8 inches and weigh over 5 lbs. The polypropylene sheets are low loss dielectric materials which, as taught at col. 5, lines 6-9, are effective by themselves to concentrate heat to the food product.

Applicants' invention is an insert comprising a substrate supporting an active microwave energy heating element. The substrate is an underlying support layer separate from the heating element. By contrast, the sheets of polypropylene disclosed in Gades et al. are a low loss dielectric material acting as a heat concentrator, either alone or in combination with the embedded, concentric metal rings.

Applicants' invention, as defined in amended claim 31, is further directed to an active microwave energy heating element configured to control transmission of incident microwave energy towards a central region of a food product in a container. Gades et al. does not disclose a means of controlling transmission of incident microwave energy, but merely concentrates energy towards the center of the heat concentrator.

Applicants further submit that Gades et al. does not disclose the use of at least one meandering loop of microwave interactive material. Instead, Gades et al. teaches the use of concentric, which by implication must comprise at least two, metal rings, which are by definition circular not meandering.

Accordingly, Applicants submit that amended claim 31 clearly distinguishes over Gades et al., and is now in condition for allowance. Applicants request withdrawal of the rejection of claim 31 under 35 U.S.C. § 102(b).

The Examiner has rejected claims 32 to 35 under 35 U.S.C. § 103(a) as being unpatentable over Gades et al., in view of Dehn or Habeger, Jr. et al. The Examiner has stated

Facsimile No. 703-308-7764
Serial No. 08/703,100
Attorney Docket No. 5060.03

that Gades et al. discloses the claimed invention except for the use of the antenna loop as a part of the microwave interactive pattern. Dehn or Habeger, Jr. et al. teaches that it is well known in the art of microwave cooking containers to use a plurality of closed loops forming antennae structure to couple microwave energy to the desired areas of the containers.

In response, Applicants have canceled claims 32 and 33, the subject matter of which has been incorporated into amended claim 31, as noted above. Applicants have amended claims 34 and 35 to properly depend upon amended claim 31.

Applicants respectfully reiterate the comments above with respect to Habeger, Jr. et al., Dehn, and Gades et al. Applicants further submit that Dehn does not disclose the use of closed loops forming antennae structure, but acknowledge that Habeger, Jr. et al. discloses the use of closed loops forming antennae structure to couple energy to a food product. However, referring to col. 4, lines 32 to 53, the closed loops taught by Habeger, Jr. et al. capture energy from within the oven cavity and transmit the energy to brown the surface of the food product.

Applicants submit that none of Gades et al., Habeger, Jr. et al., or Dehn, separately or together, disclose or suggest the use of at least one meandering loop to control transmission of incident microwave energy to the center of a food product contained within a tray supported by the insert of amended claims 34 and 35. Accordingly, Applicants submit that amended claims 34 and 35, dependent upon amended claim 31, clearly distinguish over the cited art, and are now in a position for allowance. Applicants request withdrawal of the rejection of claims 32-35 under 35 U.S.C. § 103(a).

The Examiner has rejected claims 21 to 30 under 35 U.S.C. § 103(a) as being unpatentable over Beckett '078 or Beckett '980, in view of Dehn or Habeger, Jr. et al. The Examiner states that "Beckett '078 or Beckett '980 discloses the claimed invention except for the use of a different configuration of microwave heating element for channeling energy towards the central region of the tray. Dehn or Habeger, Jr. teaches that it is well known in the art of microwave cooking containers to use a plurality of closed loops forming antenna structure to couple microwave energy to the desired areas of the containers." "The exact shape and the pattern of the reflective elements and the loops would have been a matter of engineering design variations depending on the shape and the size of the container, the relative positioning of the food and the characteristics of the food to be heated." See 22 Oct. 1999

Facsimile No. 703-308-7764
Serial No. 08/703,100
Attorney/ Docket No. 5060.03

Office Action, para. bridging pp. 4 and 5.

In response, Applicants have amended claim 21, and canceled claims 22 and 23, as noted above, and amended the dependencies of claims 24 and 25.

Beckett '078 discloses a plurality of apertures in an aluminum container to brown the bottom of a food product. Referring to figure 7 of Beckett '078, the apertures 24 may be formed as a series of concentric rings. As described at col. 8, lines 5 to 24, apertures 24 concentrate microwave energy from the oven interior to a base 12 of a dish 10, resulting in improved browning of the bottom crust. Aluminum side wall 14 is opaque to microwave energy. Therefore, sidewall 14 does not control the proportion of microwave energy reaching the interior of the food product, but merely shields portions of the food product.

On exposure to microwave energy, the slots described in Beckett '078 have induced along their length a sinusoidal varying voltage. The nature and intensity of this voltage is dependent upon the length of the slot and its orientation with respect to the polarization of the incident microwave energy. The induced voltage leads to an electric field strength within the slot which browns and/or bakes an adjacent food product. However, the electric fields are contained within the slots, as such adjacent slots do not effectively couple together to provide a means of controlling, or redistributing energy to a central region of the food product. In addition, the slots are substantially reflective in nature and are, therefore, unable to generate even heating if browning is also desired.

Applicants submit that Beckett '078 does not disclose a pattern comprised of at least one meandering loop. Beckett '078 discloses slot structures having straight, circular, or helical shapes. Nor does Beckett '078 disclose a means of both controlling transmission of incident microwave energy to a central portion of a food product, and browning an outer surface of the food product.

Beckett '980 discloses a microwave tray for achieving even bulk heat distribution of a food product contained therein. The tray has a bottom wall 12 supporting a pattern of microwave reflective material 23, and a shielded sidewall 14. Beckett '980 teaches, at col. 3, lines 46-50, that the pattern of microwave reflective material slows down penetration of microwave energy to the periphery of the food product, and directs more energy to the center. As a result, there is no browning promoted at the periphery.

Facsimile No. 703-308-7764
Serial No. 08/703,100
Attorney Docket No. 5060.03

Applicants acknowledge that Beckett '078 and '980 disclose structures which brown an outer surface, and channel energy towards a center of a food product, respectively. However, Applicants submit that it was not obvious to combine these two functions as they were previously thought to be mutually exclusive, as noted in Beckett '980 above. It is the novel configuration of a first pattern having at least one meandering loop to control transmission of incident microwave energy to the center of a food product, in conjunction with a second pattern to brown an outer surface, which permits Applicants' invention to constructively achieve controlled bulk heating and surface browning.

Applicants respectfully reiterate the comments above with respect to Habeger, Jr. et al. and Dehn.

Applicants respectfully submit that none of the cited references, separately or together, disclose or suggest the use of active microwave heating elements, one of which is in the shape of a meandering loop, to control transmission of incident microwave energy towards a central region of the food product, while browning an outer surface of the food product. Accordingly, Applicants submit that amended claims 21-30 clearly distinguish over the cited art and are now in a position for allowance. Applicants request withdrawal of the rejection of claims 21-30 under 35 U.S.C. § 103(a).

The Examiner has rejected claims 1 to 20 under 35 U.S.C. § 103(a) as being unpatentable over Beckett '078 or Beckett '980 in view of Dehn or Habeger, Jr. et al., and further in view of Mikulski et al. The Examiner has stated that Beckett '078 or Beckett '980 combined with Dehn or Habeger, Jr. et al. discloses the claimed invention except for the use of a sleeve for covering an inner tray carrying a food article. Mikulski et al. shows that it is well known in the art of microwave cooking containers to use a sleeve with a microwave-susceptive material to cover an inner tray to control the amount of microwave heating.

In response, Applicants have amended claim 1 to more particularly claim the subject matter which is regarded as the invention. Applicants note that claims 2-20 depend, directly or indirectly upon claim 1.

In particular, Applicants have amended claim 1 to claim a microwavable container comprising an outer sleeve, an inner tray within the sleeve, the inner tray having a bottom wall and at least one upstanding side wall about the periphery or the bottom wall, a first active

Facsimile No. 703-308-7764
Serial No. 08/703,100
Attorney Docket No. 5060.03

microwave energy heating element within the sleeve, the first active microwave energy heating element disposed opposite a food product carried by the tray, and a second active microwave energy heating element on the tray. The second active microwave energy heating element has patterns of microwave energy interactive material on the bottom and side walls. The first and second active microwave energy heating elements cooperatively control transmission of incident microwave energy towards a central region of the food product, while promoting browning of an outer surface of the food product.

Applicants respectfully reiterate the comments above with respect to Beckett '078 or Beckett '980 in view of Dehn or Habeger, Jr. et al.

Applicants acknowledge that Mikulski et al. teaches the use of a sleeve with microwave susceptible material as part of a multi-component microwave package. However, Mikulski et al. merely discloses a shield with windows to selectively allow microwave energy to heat a food product contained therein. Mikulski et al. teaches, at col. 3, lines 50-60, that the windows are preferably 22-25% of the area of each surface. Moreover, Mikulski et al. teaches, at col. 3, lines 62-65, that it is essential that the closed sides and bottom have at least one window.

Applicants respectfully submit that none of Beckett '078, Beckett '980, Dehn, Habeger, Jr. et al., and Mikulski et al., separately or together, disclose or suggest the use of active microwave heating elements to control transmission of incident microwave energy towards a central region of the food product, while also browning an outer surface of the food product. Accordingly, Applicants submit that amended claims 1-20 clearly distinguish over the cited art and are now in a position for allowance. Applicants request withdrawal of the rejection of claims 1-20 under 35 U.S.C. § 103(a).

In numbered paragraph 10 of the Office Action, the Examiner requested "a copy of the claims in the parent application which were indicated as allowable by the Examiner." Unfortunately, we cannot locate a copy of any such claims. The files that we received from the prior attorneys do not even contain any indication of allowability.

The Applicants respectfully request that the Examiner confirm receipt of any required certified copy of the priority application, U.S. utility application Serial No. 08/703,100, filed 26 August 1996. It appears from the Form PCT/DO/EO/903 that the required priority

Facsimile No. 703-308-7764
Serial No. 08/703,100
Attorney Docket No. 5060.03

document has been received by the U.S. Patent and Trademark Office. Also, the Applicants do not have a copy of the Filing Receipt. It would be greatly appreciated if the Examiner would provide a copy of the Filing Receipt to the Applicants.

The Applicants will separately file the PTO-1449 requested by the Examiner.

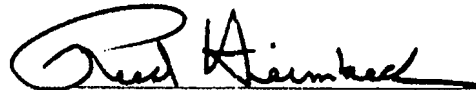
In view of the forgoing amendments, Applicants submit that the application is now clearly in a position for allowance and respectfully request same.

The Examiner is invited to contact the undersigned directly by telephone if a telephone interview will expedite prosecution of this application.

Enclosed herewith is a petition for a two-month extension of time, extending the time period for responding to the afore-noted office action to 22 March 2000, together with a check in the amount of \$380 as payment for the requested two-month extension of time.

Signed at Denver, Colorado, this 22nd day of March, 2000.

Respectfully submitted,



Reed R. Heimbecher, Reg. No. 36,353
Attorney for Applicants
DORSEY & WHITNEY LLP
370 17th Street, #4400
Denver, CO 80202-5644
Customer No. 20686
Tel: 303-629-3400
Fax: 303-629-3450